

TRAFFIC AND PARKING IMPACT ASSESSMENT OF A PROPOSED PLACE OF WORSHIP

***Proposed Lot 212 Forestwood Drive in Glenmore
Park***

Traffic and Parking Impact Report

Prepared for: Kingswood Gospel Trust

N1916305A (Version 1a)

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1. INTRODUCTION

Motion Traffic Engineers was commissioned by Kingswood Gospel Trust to undertake a traffic and parking impact assessment of a propose Place of Worship in Proposed Lot 212 Forestwood Drive in Glenmore Park. The development site is located west of Mulgoa Rise Fields. The site is currently a vacant lot. Not all of the roads near the site were completed and made available to the public at the time of the report.

This traffic report focuses on the proposed development and changes in car usage and car park utilisation and additional trips from the proposed development.

In the course of preparing this assessment, the subject site and its environs have been inspected, plans of the development examined, and all relevant traffic and parking data collected and analysed.

2. BACKGROUND AND EXISTING CONDITIONS OF THE PROPOSED LOCATION

2.1 Location and Land Use

The development site is located west of Mulgoa Rise Fields. The immediate surrounding land use is residential. The site is in a new subdivision and many of the lots are not yet occupied by residential houses as at the time of this report preparation.

Figures 1 and 2 show the location of the development site from an aerial and street map perspective respectively.

Figure 3 shows a photograph of the site from Forestwood Drive.

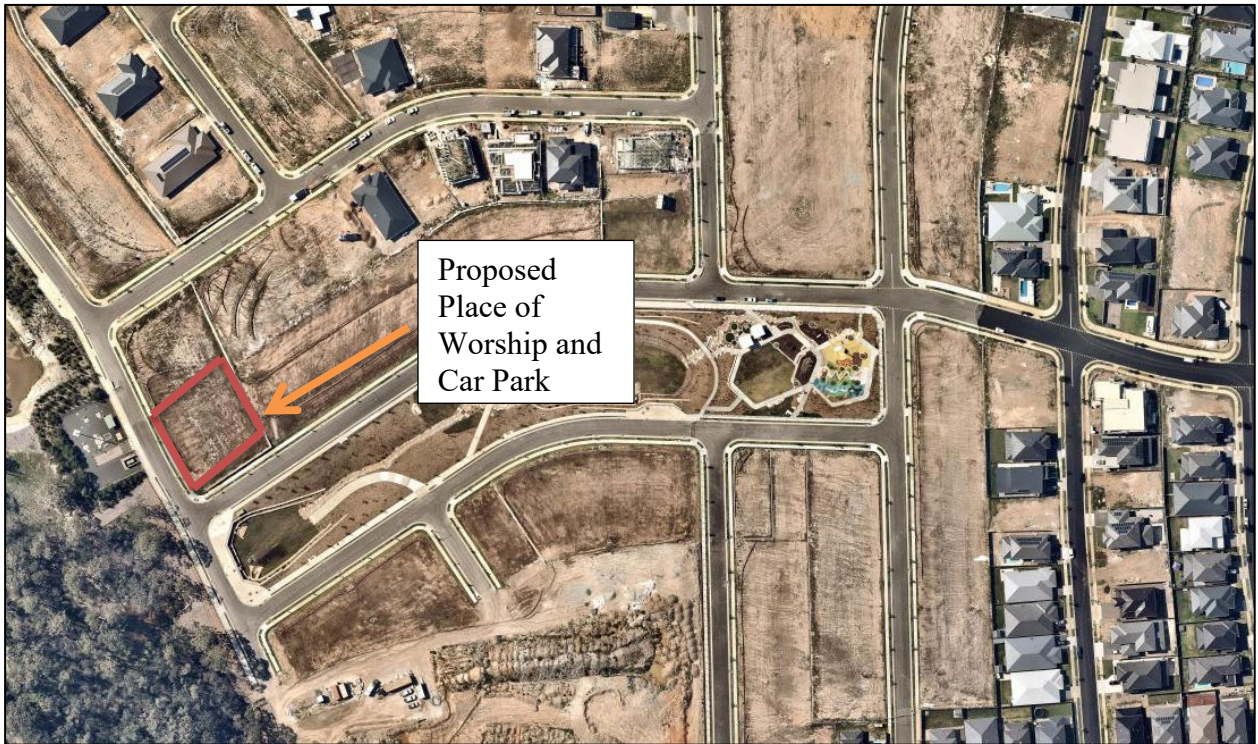


Figure 1: Location of the Subject Site on Aerial



Figure 3: Photo of Development Site from Forestwood Drive

2.2 Road Network

This section describes the roads near the proposed development.

Bradly Street is a local collector road with one lane each way. The default speed limit is 50km/hr. On-street parking is permitted on both sides of the road. Figure 4a shows a photograph of Bradly Street.

Forestwood Drive is a local collector road with one lane each way. The default speed limit is 50km/hr. On-street parking is permitted on both sides of the road. Figure 4b shows a photograph of Forestwood Drive.

Bluestone Drive is a local collector road with one lane each way. The default speed limit is 50km/hr. On-street parking is permitted on both sides of the road. Figure 4c shows a photograph of Bluestone Drive.



Figure 4a: Bradly Street facing East



Figure 4b: Forestwood Drive facing east



Figure 4c: Bluestone Drive facing south

2.3 Public Parking Opportunities

The development site is located in a general residential zone. There are on-street parking opportunities on both sides Bradly Street, Forestwood Drive and Bluestone Drive. Site visits show that there are ample vacant car spaces on this road. Many of the nearby houses have on site parking and do not necessarily need to park on street.

2.4 Intersection Description

As part of the traffic assessment, two intersections are assessed:

- Priority-controlled intersection of Bradly Street with Bluestone Drive
- Priority-controlled intersection of Forestwood Drive with Bluestone Drive

External traffic travelling to and from the development site will most likely need to travel through one of the above intersections.

Priority-controlled intersection of Bradly Street with Bluestone Drive is a four-leg intersection with all turn movements permitted. Drivers on Bluestone Drive must give way to vehicles on Bradly Street. Figure 5 presents the layout of this intersection using SIDRA – an industry standard intersection software.

Priority-controlled intersection of Forestwood Drive with Bluestone Drive is a four-leg intersection with all turn movements permitted. Drivers on Bradley Street must give way to vehicles on Forestwood Drive. Figure 6 presents the layout of this intersection using SIDRA – an industry standard intersection software.

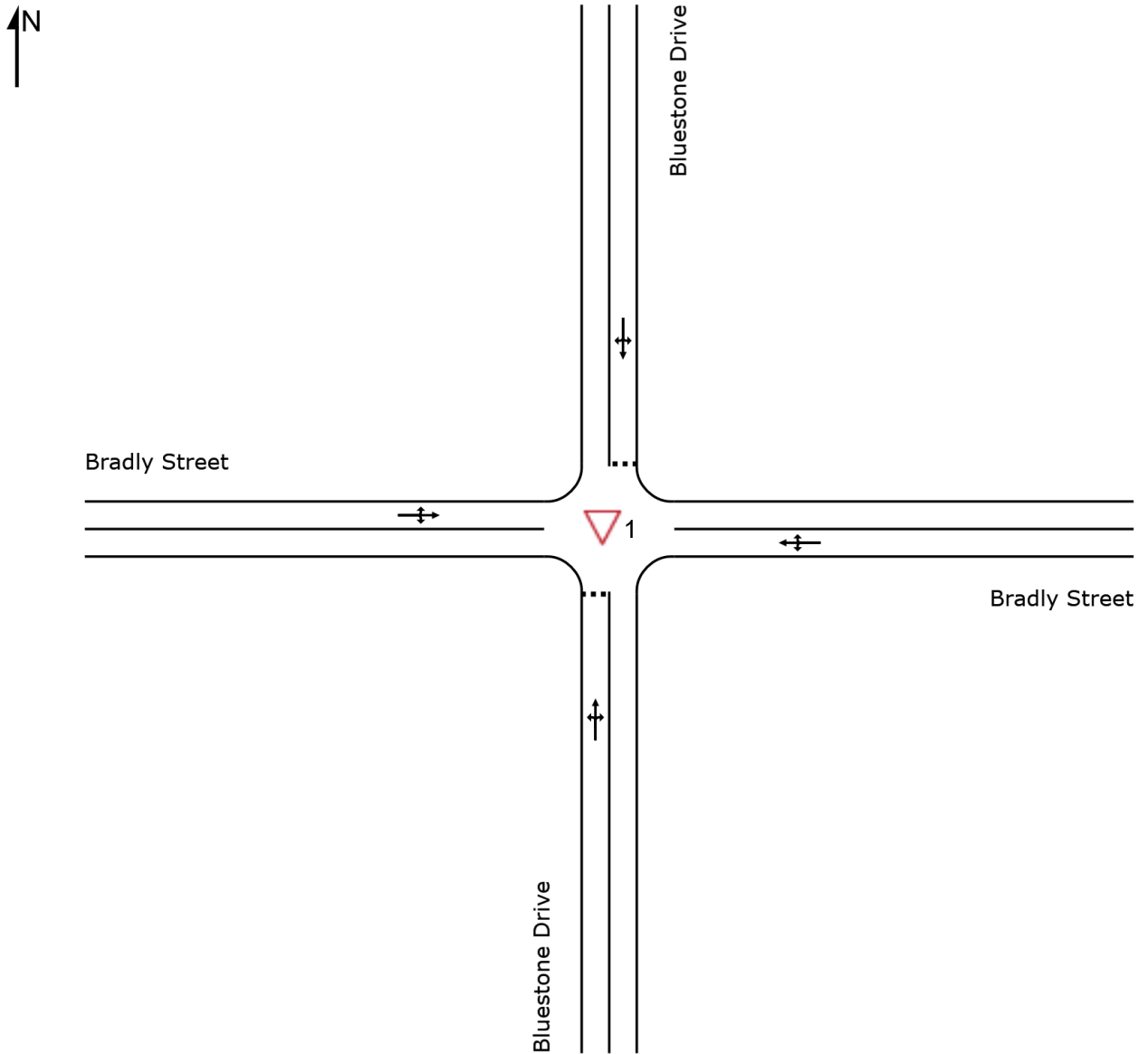


Figure 5: Priority-controlled intersection of Bradly Street with Bluestone Drive (SIDRA)

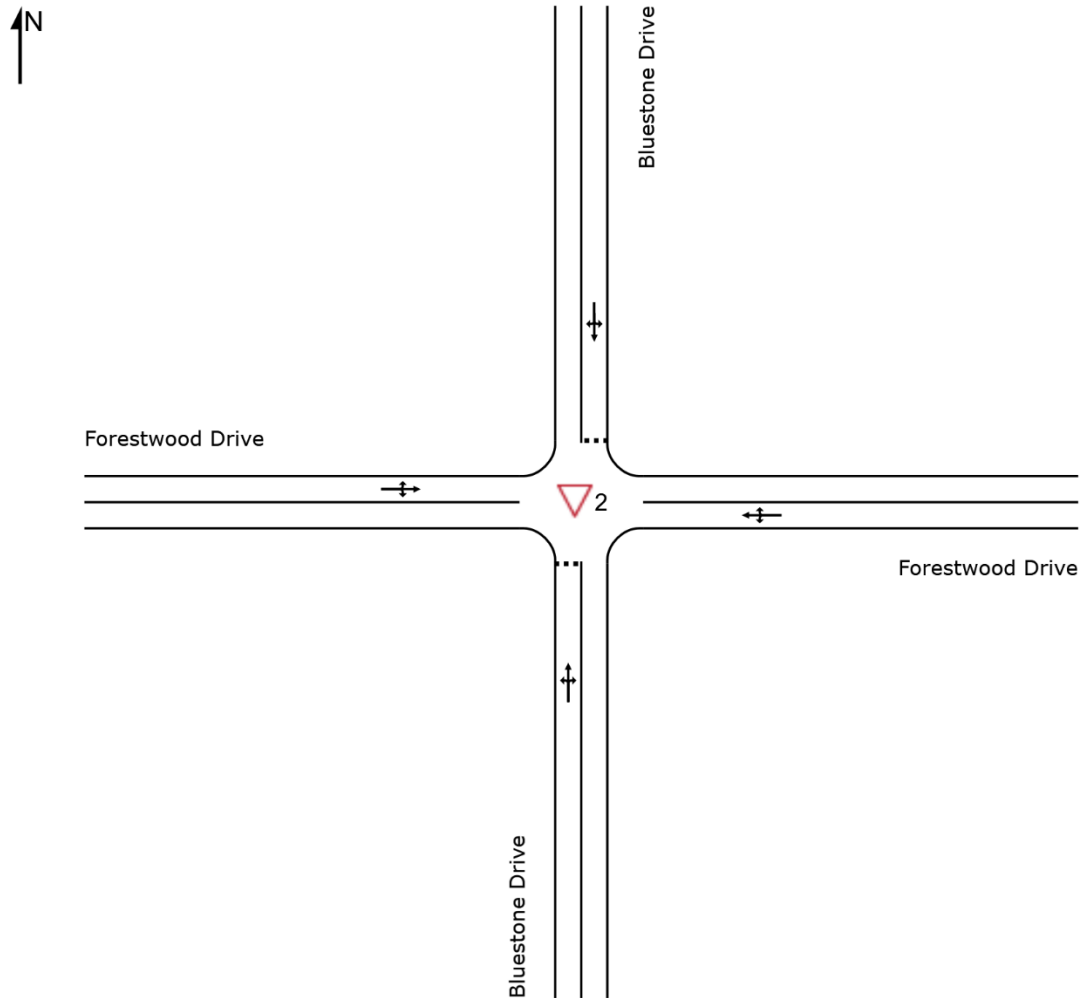


Figure 6: Priority-controlled intersection of Forestwood Drive with Bluestone Drive (SIDRA)

2.5 Existing Traffic Volumes

As part of the traffic assessment, traffic counts have been undertaken at the two intersections for the weekday departure hour of the Lords Supper that commences at 6am and ends at 7am that occurs on a Sunday, and for the evening event on a Monday is a prayer meeting that begins at 6:30pm and ends at 7pm.

The survey hour of the morning is the departure hour (since there will be higher traffic on the local road than the arrival hours).

The arrival hour of the evening (6pm to 7pm) is assessed since the arrival hour has higher traffic than the departure hour.

The traffic surveys were undertaken on a weekday in November 2019.

The following figures present the traffic volumes in vehicles for the weekday AM and PM peak hours.

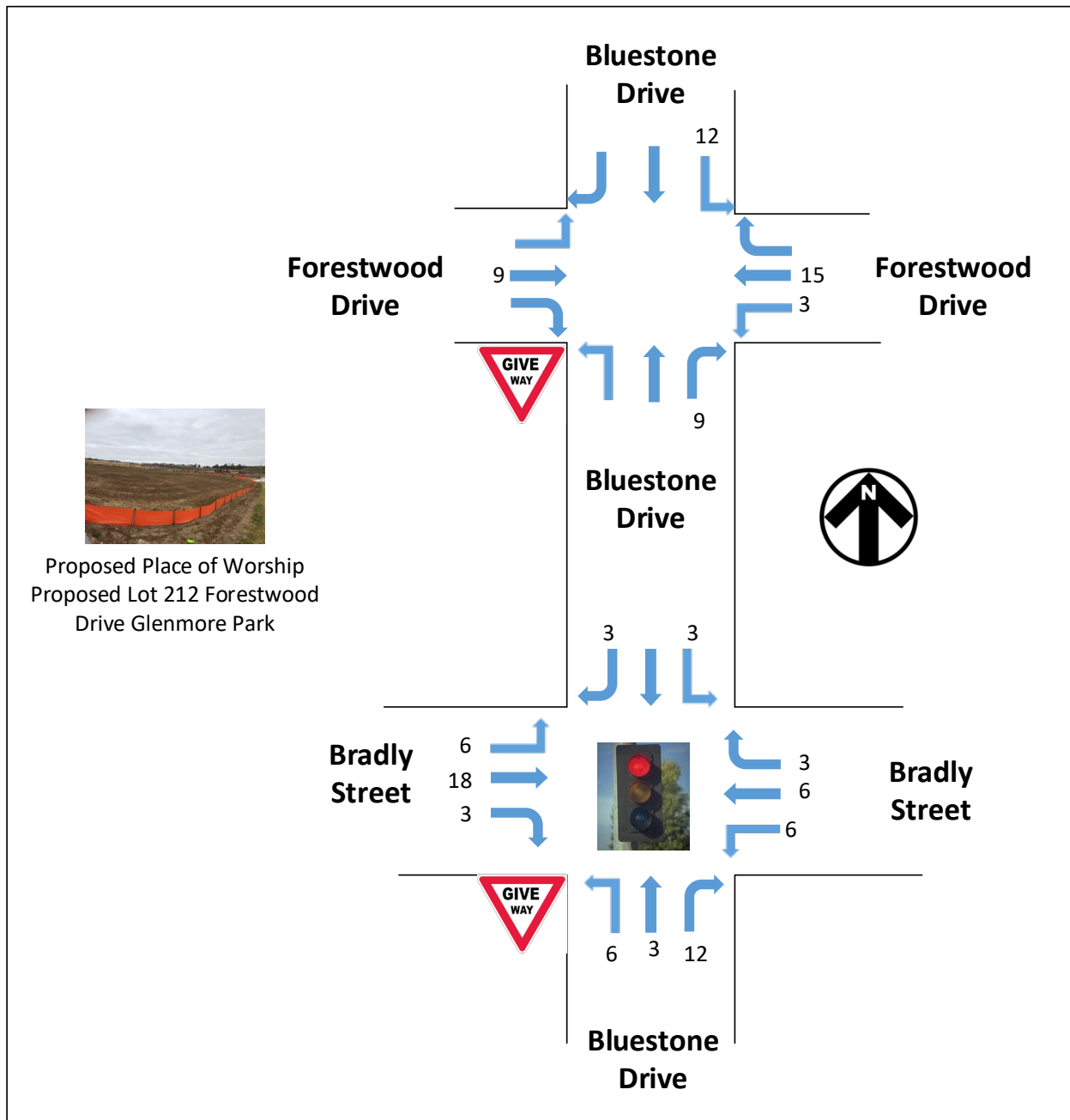


Figure 7: Existing Weekday Traffic Volumes AM Peak Hour

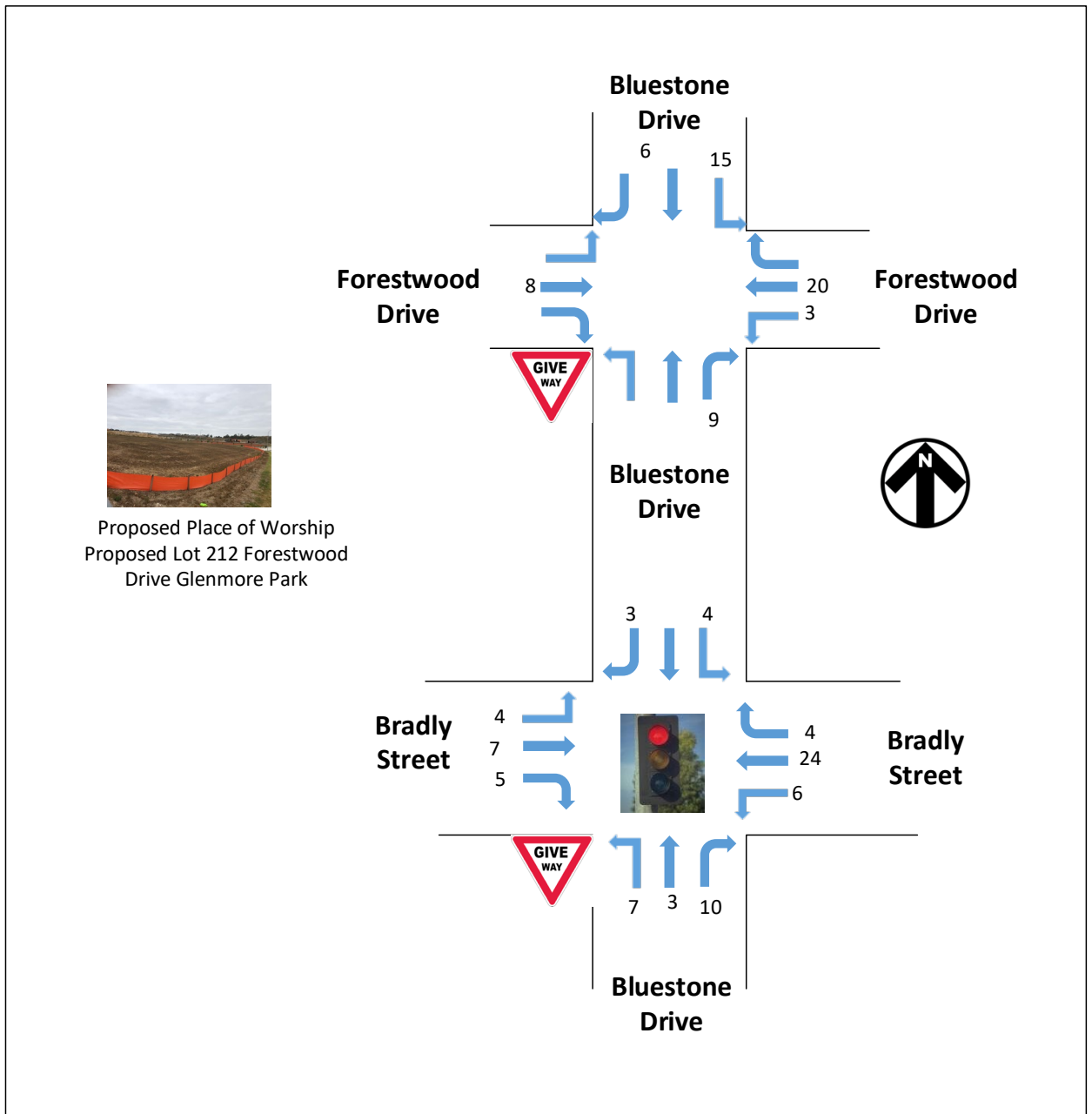


Figure 8: Existing Weekday Traffic Volumes PM Peak Hour

2.6 Intersection Assessment

An intersection assessment has been undertaken for the two surveyed intersections:

- Priority-controlled intersection of Bradley Street with Bluestone Drive
- Priority-controlled intersection of Forestwood Drive with Bluestone Drive

The existing intersection operating performance was assessed using the SIDRA software package (version 8) to determine the Degree of Saturation (DS), Average Delay (AVD in seconds) and Level of Service (LoS) at each intersection. The SIDRA program provides Level of Service Criteria Tables for various intersection types. The key indicator of intersection performance is Level of Service, where results are placed on a continuum from 'A' to 'F', as shown in Table 1.

LoS	Traffic Signal / Roundabout	Give Way / Stop Sign / T-Junction control
A	Good operation	Good operation
B	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	Satisfactory	Satisfactory, but accident study required
D	Operating near capacity	Near capacity & accident study required
E	At capacity, at signals incidents will cause excessive delays.	At capacity, requires other control mode
F	Unsatisfactory and requires additional capacity, Roundabouts require other control mode	At capacity, requires other control mode

Table 1: Intersection Level of Service

The Average Vehicle Delay (AVD) provides a measure of the operational performance of an intersection as indicated below, which relates AVD to LOS. The AVD's should be taken as a guide only as longer delays could be tolerated in some locations (i.e. inner-city conditions) and on some roads (i.e. minor side street intersecting with a major arterial route). For traffic signals, the average delay over all movements should be taken. For roundabouts and priority control intersections (sign control) the critical movement for level of service assessment should be that movement with the highest average delay.

LoS	Average Delay per Vehicles (seconds/vehicle)
A	Less than 14
B	15 to 28
C	29 to 42
D	43 to 56
E	57 to 70
F	>70

Table 2: Intersection Average Delay (AVD)

The degree of saturation (DS) is another measure of the operational performance of individual intersections. For intersections controlled by traffic signals both queue length and delay increase rapidly as DS approaches 1. It is usual to attempt to keep DS to less than 0.9. Degrees of Saturation in the order of 0.7 generally represent satisfactory intersection operation. When DS exceed 0.9 queues can be anticipated.

The results of the intersection analysis are as follows:

Priority-controlled intersection of Bradly Street with Bluestone Drive

- All turn movements have LoS A for both peak hours
- There is spare capacity at this intersection

Priority-controlled intersection of Forestwood Drive with Bluestone Drive

- All turn movements have LoS A for both peak hours
- There is spare capacity at this intersection

The full SIDRA results are presented in Appendix A.

2.7 Conclusions on the Existing Conditions

The proposed development is located in an area where there are ample vacant car spaces on a weekday on Bradly Street, Forestwood Drive and Bluestone Drive.

The nearby intersections perform well with sufficient spare capacity to accommodate additional traffic.

The site has access to public transport with the nearest bus stop 800 metres away.

3. PROPOSED PLACE OF WORSHIP AND CAR PARK AREA

The land-uses for the proposed Place of Worship and Car Park area are as follows:

- Proposed Place of Worship with GFA of 145.5m²
- Proposed carport with GFA of 36.9m²
- Proposed Porch with 4.8m²
- Proposed Car park area with GFA of 345.8m²

Vehicle access and egress to the carpark on the ground floor is via Forestwood Drive.

The parking area is located on the ground floor:

- Eleven car spaces
- One disabled car space
- One carport

Total of 13 car spaces is provided.

The operation details are as follows:

- Lords Supper that commences at 6am and ends at 7am on a Sunday (maximum 40 people)
- Monday evening is a prayer meeting that begins at 6:30pm and ends at 7pm (maximum 40 people)
- Friday meetings from 7pm to 8pm five times a year with a maximum of 90 people
- Sunday afternoon meeting 3:30pm for one hour with a maximum of 50 people

Average attendance per event is 40 people out of a congregation of about 400 members. Typical car numbers for 40 people in attendance is 13 cars.

Further information of the Place of Worship operations can be found in the Plan of Management.

A full scaled plan of the proposed development is provided as part of the Development Application. Scaled measurements should use these plans.

4. CAR PARKING CONSIDERATIONS

4.1 Penrith Development Control Plan 2009

The car parking requirements for Place of Worship are presented in *Penrith Development Control Plan 2014 (PDCP2014)*.

Place of Worship

- 1 space per 6m² of GFA (Gross Floor Area) or
- 1 space per 4 seats whichever is greater

The greater car

Table 3 summarises the car parking requirements for the Place of Worship development. The car spaces required is twenty-four versus thirteen car spaces provided.

Use	GFA(m ²)	Car Parking Rate	Car Spaces Required	Car Spaces Provided
Meeting Hall	145.5	0.17	24	13
Total			24	13

Table 3: Summary of Car Parking Requirements and Provision

The proposed development does not comply with the *Penrith Development Control Plan 2014*.

Average attendance per event is 40 people out of a congregation of about 400 members. Typical car numbers for 40 people in attendance is 13 cars. This information was provided by the Church members. The implementation of the Plan of management will ensure all car parking demand will be met on site for the weekly events.

5. VEHICLE TRAFFIC IMPACT CONSIDERATIONS

5.1 Traffic Generation

Neither Penrith Council nor the NSW Government publishes trip rates for Place of Worship.

The proposed car trips for the traffic assessment are derived from the estimated number of attendees. The average number of attendees for congregation in proposed Place of Worship is approximately 40 people.

The trip generation is as follows:

Weekly Event

- 13 arrivals in the arrival hour
- 13 departure trips for the departure hour

The above trips is based on an attendance of 40 people on a weekly congregation

5.2 Traffic Volumes

The additional development trips are assigned onto the local traffic network. The following figures present the existing with the development trips (in red for origin trips and blue for destination trips) for the weekday AM and PM peak hour.

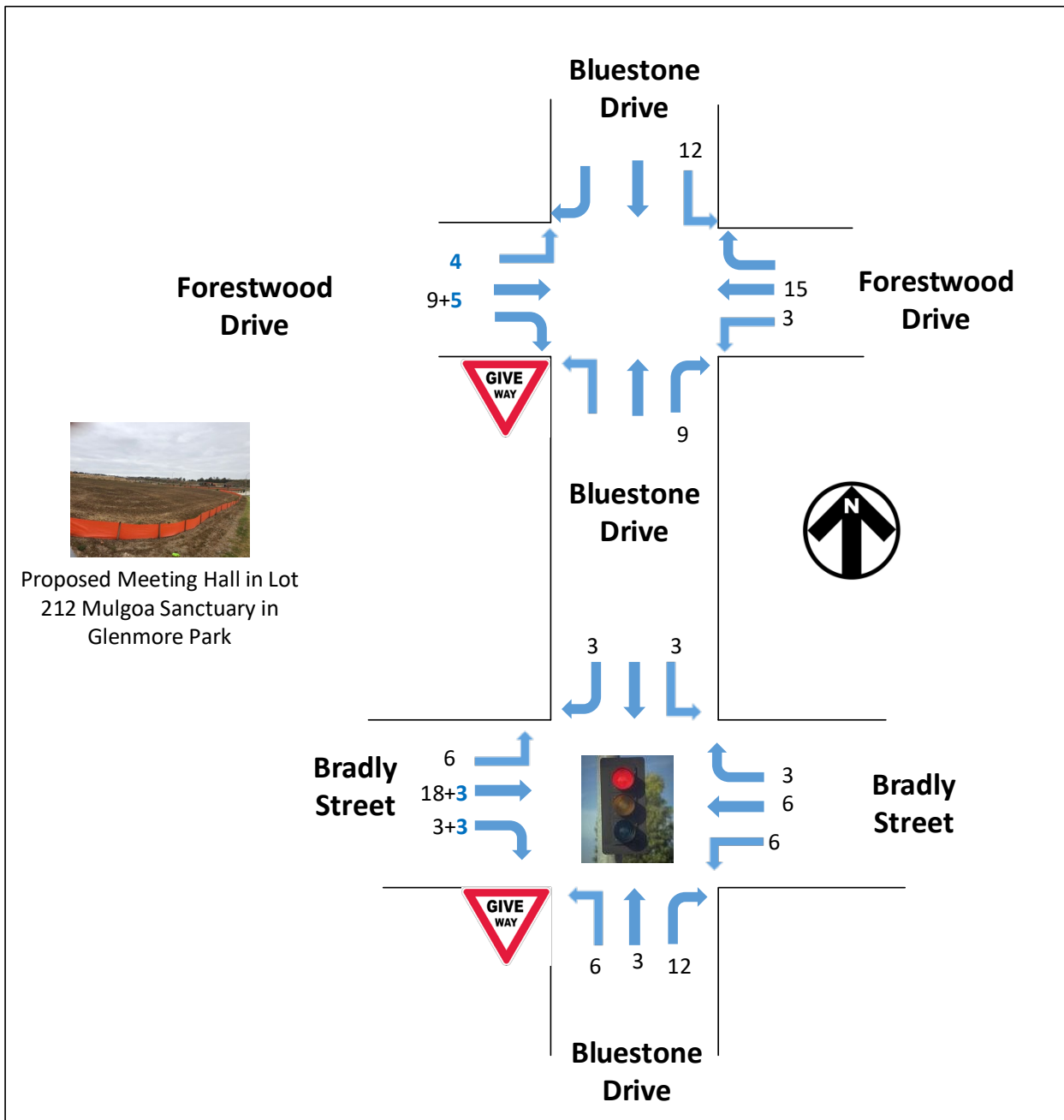


Figure 9: Weekday AM Peak Hour Traffic Volumes (Development Origin Trips in Red and Destination Trips in Blue)

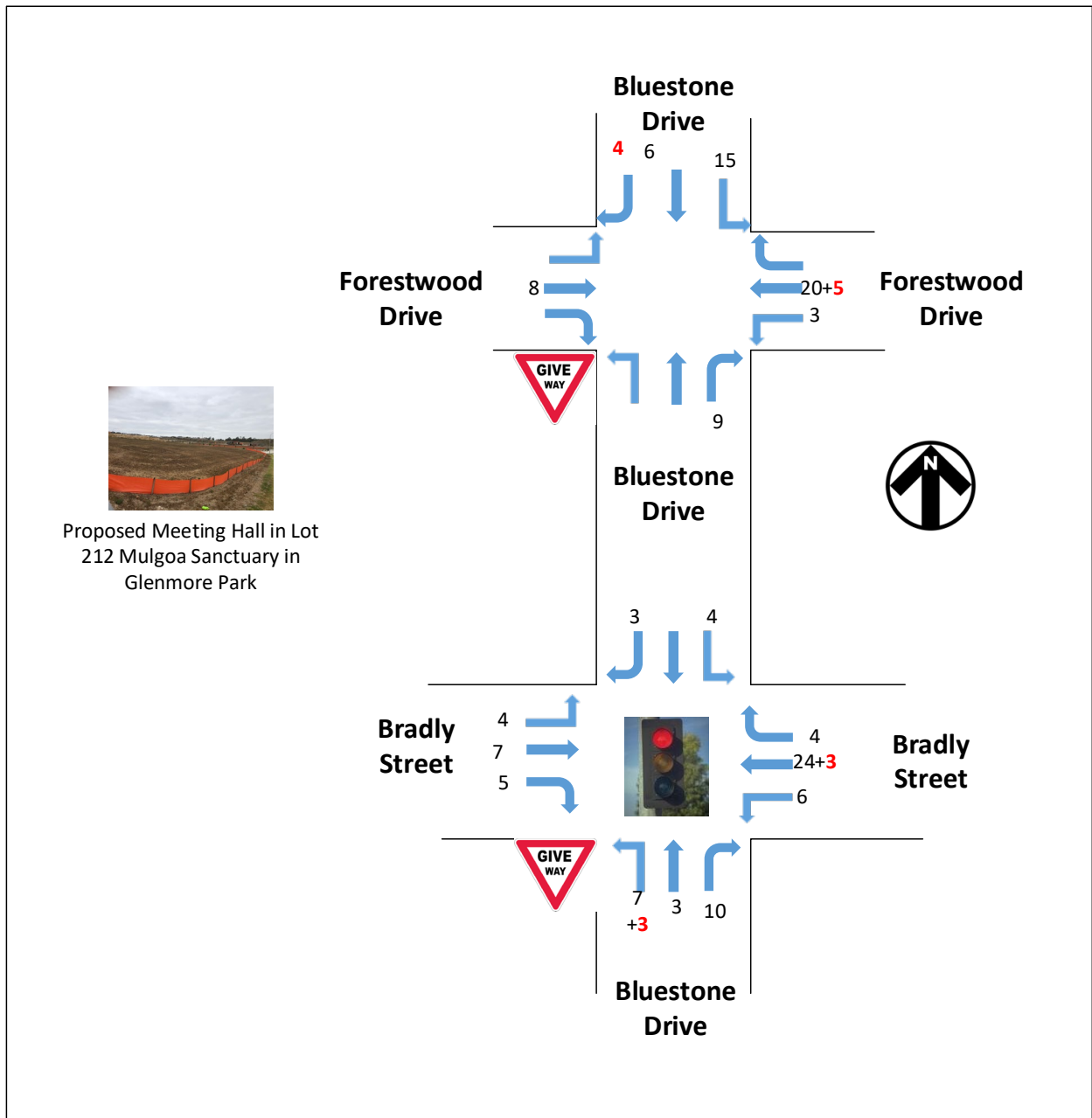


Figure 10: Weekday PM Peak Hour Traffic Volumes (Development Origin Trips in Red and Destination Trips in Blue)

5.3 Intersection Assessment

An intersection assessment has been undertaken for the two nearby intersections.

The results of the intersection analysis are as follows for the AM and PM peak hours:

Priority-controlled intersection of Bradly Street with Bluestone Drive

- All turn movements have LoS A for both peak hours
- The additional trips do not change the LoS of any turn movements

Priority-controlled intersection of Forestwood Drive with Bluestone Drive

- All turn movements have LoS A for both peak hours
- The additional trips do not change the LoS of any turn movements

The full SIDRA results with the development traffic are presented in Appendix B. The existing conditions are presented in Appendix A.

6. CONCLUSIONS

Based on the considerations presented in this report, it is considered that:

Parking

- The proposed Place of Worship overall complies with the expected parking demand based on the number of attendees for each weekly event
- The implementation of the Plan of Management will ensure that car parking will be met on site for weekly events

Traffic

- The proposed development is a medium trip generator for the weekday AM and PM peak hours.
- The additional trips from the proposed development can be accommodated at the nearby intersections and road network without noticeably affecting intersection performance, delays or queues.
- There are no traffic engineering reasons why a development consent for the proposed boarding house development at Proposed Lot 212 Forestwood Drive in Glenmore Park should be refused.

APPENDIX A

SIDRA Intersection Results for Existing Traffic Conditions

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	of Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	v/c	sec		veh	m				km/h
South: Bluestone Drive												
1	L2	6	0.0	0.018	4.6	LOS A	0.1	0.4	0.05	0.52	0.05	45.5
2	T1	3	0.0	0.018	3.3	LOS A	0.1	0.4	0.05	0.52	0.05	43.0
3	R2	13	0.0	0.018	4.7	LOS A	0.1	0.4	0.05	0.52	0.05	45.0
Approach		22	0.0	0.018	4.5	LOS A	0.1	0.4	0.05	0.52	0.05	44.9
East: Bradly Street												
4	L2	6	0.0	0.008	4.6	LOS A	0.0	0.1	0.05	0.31	0.05	46.8
5	T1	6	0.0	0.008	0.0	LOS A	0.0	0.1	0.05	0.31	0.05	48.1
6	R2	3	0.0	0.008	4.6	LOS A	0.0	0.1	0.05	0.31	0.05	46.1
Approach		16	0.0	0.008	2.8	NA	0.0	0.1	0.05	0.31	0.05	47.3
North: Bluestone Drive												
7	L2	3	0.0	0.006	4.6	LOS A	0.0	0.1	0.08	0.51	0.08	45.2
8	T1	1	0.0	0.006	3.3	LOS A	0.0	0.1	0.08	0.51	0.08	42.8
9	R2	3	0.0	0.006	4.7	LOS A	0.0	0.1	0.08	0.51	0.08	44.6
Approach		7	0.0	0.006	4.5	LOS A	0.0	0.1	0.08	0.51	0.08	44.7
West: Bradly Street												
10	L2	6	0.0	0.015	4.6	LOS A	0.0	0.2	0.02	0.18	0.02	47.8
11	T1	19	0.0	0.015	0.0	LOS A	0.0	0.2	0.02	0.18	0.02	48.9
12	R2	3	0.0	0.015	4.6	LOS A	0.0	0.2	0.02	0.18	0.02	47.3
Approach		28	0.0	0.015	1.5	NA	0.0	0.2	0.02	0.18	0.02	48.6
All Vehicles		74	0.0	0.018	3.0	NA	0.1	0.4	0.04	0.34	0.04	47.0

Table A1: Priority-controlled Intersection of Bradly Street with Bluestone Drive Weekday Morning Period Existing Conditions

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m				
South: Bluestone Drive												
1	L2	1	0.0	0.010	4.6	LOS A	0.0	0.2	0.10	0.52	0.10	45.1
2	T1	1	0.0	0.010	3.3	LOS A	0.0	0.2	0.10	0.52	0.10	43.6
3	R2	9	0.0	0.010	4.7	LOS A	0.0	0.2	0.10	0.52	0.10	44.6
Approach		12	0.0	0.010	4.6	LOS A	0.0	0.2	0.10	0.52	0.10	44.6
East: Forestwood Drive												
4	L2	1	0.0	0.009	5.6	LOS A	0.0	0.1	0.01	0.07	0.01	56.8
5	T1	16	0.0	0.009	0.0	LOS A	0.0	0.1	0.01	0.07	0.01	59.3
6	R2	1	0.0	0.009	5.5	LOS A	0.0	0.1	0.01	0.07	0.01	56.4
Approach		18	0.0	0.009	0.7	NA	0.0	0.1	0.01	0.07	0.01	59.1
North: Bluestone Drive												
7	L2	13	0.0	0.010	5.6	LOS A	0.0	0.3	0.04	0.56	0.04	52.2
8	T1	1	0.0	0.010	4.2	LOS A	0.0	0.3	0.04	0.56	0.04	48.8
9	R2	1	0.0	0.010	5.6	LOS A	0.0	0.3	0.04	0.56	0.04	51.6
Approach		15	0.0	0.010	5.5	LOS A	0.0	0.3	0.04	0.56	0.04	52.0
West: Forestwood Drive												
10	L2	1	0.0	0.006	5.6	LOS A	0.0	0.1	0.02	0.11	0.02	56.8
11	T1	9	0.0	0.006	0.0	LOS A	0.0	0.1	0.02	0.11	0.02	59.0
12	R2	1	0.0	0.006	5.5	LOS A	0.0	0.1	0.02	0.11	0.02	55.5
Approach		12	0.0	0.006	1.0	NA	0.0	0.1	0.02	0.11	0.02	58.5
All Vehicles		56	0.0	0.010	2.8	NA	0.0	0.3	0.04	0.30	0.04	54.2

Table A2: Priority-controlled Intersection of Forestwood Drive with Bluestone Drive Morning Hour Existing Conditions

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bluestone Drive												
1	L2	7	0.0	0.017	4.6	LOS A	0.1	0.4	0.10	0.51	0.10	45.4
2	T1	3	0.0	0.017	3.3	LOS A	0.1	0.4	0.10	0.51	0.10	42.7
3	R2	11	0.0	0.017	4.8	LOS A	0.1	0.4	0.10	0.51	0.10	44.8
Approach		21	0.0	0.017	4.5	LOS A	0.1	0.4	0.10	0.51	0.10	44.8
East: Bradly Street												
4	L2	6	0.0	0.019	4.6	LOS A	0.0	0.2	0.02	0.16	0.02	48.1
5	T1	25	0.0	0.019	0.0	LOS A	0.0	0.2	0.02	0.16	0.02	49.0
6	R2	4	0.0	0.019	4.6	LOS A	0.0	0.2	0.02	0.16	0.02	47.3
Approach		36	0.0	0.019	1.4	NA	0.0	0.2	0.02	0.16	0.02	48.8
North: Bluestone Drive												
7	L2	4	0.0	0.006	4.6	LOS A	0.0	0.2	0.04	0.52	0.04	45.3
8	T1	1	0.0	0.006	3.3	LOS A	0.0	0.2	0.04	0.52	0.04	43.0
9	R2	3	0.0	0.006	4.8	LOS A	0.0	0.2	0.04	0.52	0.04	44.7
Approach		8	0.0	0.006	4.5	LOS A	0.0	0.2	0.04	0.52	0.04	44.9
West: Bradly Street												
10	L2	4	0.0	0.009	4.6	LOS A	0.0	0.2	0.07	0.29	0.07	46.7
11	T1	7	0.0	0.009	0.0	LOS A	0.0	0.2	0.07	0.29	0.07	48.1
12	R2	5	0.0	0.009	4.6	LOS A	0.0	0.2	0.07	0.29	0.07	46.3
Approach		17	0.0	0.009	2.6	NA	0.0	0.2	0.07	0.29	0.07	47.3
All Vehicles		82	0.0	0.019	2.7	NA	0.1	0.4	0.05	0.31	0.05	47.2

Table A3: Priority-controlled Intersection of Bradly Street with Bluestone Drive Weekday Morning Period Existing Conditions

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bluestone Drive												
1	L2	1	0.0	0.010	4.6	LOS A	0.0	0.2	0.11	0.52	0.11	45.1
2	T1	1	0.0	0.010	3.3	LOS A	0.0	0.2	0.11	0.52	0.11	43.5
3	R2	9	0.0	0.010	4.8	LOS A	0.0	0.2	0.11	0.52	0.11	44.5
Approach		12	0.0	0.010	4.6	LOS A	0.0	0.2	0.11	0.52	0.11	44.5
East: Forestwood Drive												
4	L2	3	0.0	0.013	5.5	LOS A	0.0	0.1	0.01	0.10	0.01	56.5
5	T1	21	0.0	0.013	0.0	LOS A	0.0	0.1	0.01	0.10	0.01	59.1
6	R2	1	0.0	0.013	5.5	LOS A	0.0	0.1	0.01	0.10	0.01	56.2
Approach		25	0.0	0.013	0.9	NA	0.0	0.1	0.01	0.10	0.01	58.7
North: Bluestone Drive												
7	L2	16	0.0	0.016	5.6	LOS A	0.1	0.4	0.04	0.55	0.04	52.5
8	T1	6	0.0	0.016	4.2	LOS A	0.1	0.4	0.04	0.55	0.04	49.1
9	R2	1	0.0	0.016	5.6	LOS A	0.1	0.4	0.04	0.55	0.04	51.8
Approach		23	0.0	0.016	5.2	LOS A	0.1	0.4	0.04	0.55	0.04	51.8
West: Forestwood Drive												
10	L2	1	0.0	0.006	5.6	LOS A	0.0	0.1	0.02	0.12	0.02	56.6
11	T1	8	0.0	0.006	0.0	LOS A	0.0	0.1	0.02	0.12	0.02	58.8
12	R2	1	0.0	0.006	5.5	LOS A	0.0	0.1	0.02	0.12	0.02	55.4
Approach		11	0.0	0.006	1.1	NA	0.0	0.1	0.02	0.12	0.02	58.4
All Vehicles		71	0.0	0.016	3.0	NA	0.1	0.4	0.04	0.32	0.04	54.3

Table A4: Priority-controlled Intersection of Forestwood Drive with Bluestone Drive Morning Hour Existing Conditions

APPENDIX B

SIDRA Intersection Results for Existing and Residential Apartment Traffic Conditions

Movement Performance - Vehicles													
Mov ID	Turn	Demand Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	v/c	sec		veh	m				km/h	
South: Bluestone Drive													
1	L2	6	0.0	0.018	4.6	LOS A	0.1	0.4	0.05	0.52	0.05	45.5	
2	T1	3	0.0	0.018	3.3	LOS A	0.1	0.4	0.05	0.52	0.05	43.0	
3	R2	13	0.0	0.018	4.7	LOS A	0.1	0.4	0.05	0.52	0.05	45.0	
Approach		22	0.0	0.018	4.5	LOS A	0.1	0.4	0.05	0.52	0.05	44.9	
East: Bradly Street													
4	L2	6	0.0	0.008	4.6	LOS A	0.0	0.1	0.05	0.31	0.05	46.8	
5	T1	6	0.0	0.008	0.0	LOS A	0.0	0.1	0.05	0.31	0.05	48.1	
6	R2	3	0.0	0.008	4.6	LOS A	0.0	0.1	0.05	0.31	0.05	46.0	
Approach		16	0.0	0.008	2.8	NA	0.0	0.1	0.05	0.31	0.05	47.3	
North: Bluestone Drive													
7	L2	3	0.0	0.006	4.6	LOS A	0.0	0.1	0.09	0.51	0.09	45.2	
8	T1	1	0.0	0.006	3.3	LOS A	0.0	0.1	0.09	0.51	0.09	42.8	
9	R2	3	0.0	0.006	4.8	LOS A	0.0	0.1	0.09	0.51	0.09	44.6	
Approach		7	0.0	0.006	4.5	LOS A	0.0	0.1	0.09	0.51	0.09	44.7	
West: Bradly Street													
10	L2	6	0.0	0.018	4.6	LOS A	0.0	0.3	0.03	0.20	0.03	47.7	
11	T1	22	0.0	0.018	0.0	LOS A	0.0	0.3	0.03	0.20	0.03	48.8	
12	R2	6	0.0	0.018	4.6	LOS A	0.0	0.3	0.03	0.20	0.03	47.2	
Approach		35	0.0	0.018	1.7	NA	0.0	0.3	0.03	0.20	0.03	48.4	
All Vehicles		80	0.0	0.018	2.9	NA	0.1	0.4	0.04	0.34	0.04	47.0	

Table B1: Priority-controlled Intersection of Bradly Street with Bluestone Drive Weekday Morning Period Existing Conditions with Place of Worship Traffic

Movement Performance - Vehicles													
Mov ID	Turn	Demand Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	

		veh/h	%	v/c	sec		veh	m			km/h	
South: Bluestone Drive												
1	L2	1	0.0	0.010	4.6	LOS A	0.0	0.2	0.10	0.52	0.10	45.1
2	T1	1	0.0	0.010	3.3	LOS A	0.0	0.2	0.10	0.52	0.10	43.6
3	R2	9	0.0	0.010	4.7	LOS A	0.0	0.2	0.10	0.52	0.10	44.6
Approach		12	0.0	0.010	4.6	LOS A	0.0	0.2	0.10	0.52	0.10	44.5
East: Forestwood Drive												
4	L2	1	0.0	0.009	5.6	LOS A	0.0	0.1	0.01	0.07	0.01	56.8
5	T1	16	0.0	0.009	0.0	LOS A	0.0	0.1	0.01	0.07	0.01	59.3
6	R2	1	0.0	0.009	5.5	LOS A	0.0	0.1	0.01	0.07	0.01	56.4
Approach		18	0.0	0.009	0.7	NA	0.0	0.1	0.01	0.07	0.01	59.1
North: Bluestone Drive												
7	L2	13	0.0	0.010	5.6	LOS A	0.0	0.3	0.06	0.55	0.06	52.1
8	T1	1	0.0	0.010	4.2	LOS A	0.0	0.3	0.06	0.55	0.06	48.7
9	R2	1	0.0	0.010	5.6	LOS A	0.0	0.3	0.06	0.55	0.06	51.5
Approach		15	0.0	0.010	5.5	LOS A	0.0	0.3	0.06	0.55	0.06	51.9
West: Forestwood Drive												
10	L2	4	0.0	0.010	5.6	LOS A	0.0	0.1	0.01	0.16	0.01	56.3
11	T1	15	0.0	0.010	0.0	LOS A	0.0	0.1	0.01	0.16	0.01	58.6
12	R2	1	0.0	0.010	5.5	LOS A	0.0	0.1	0.01	0.16	0.01	55.0
Approach		20	0.0	0.010	1.5	NA	0.0	0.1	0.01	0.16	0.01	58.0
All Vehicles		64	0.0	0.010	2.7	NA	0.0	0.3	0.04	0.29	0.04	54.6

Table B2: Priority-controlled Intersection of Forestwood Drive with Bluestone Drive Weekday Morning Period Existing Conditions with Place of Worship Traffic

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m				
South: Bluestone Drive												
1	L2	11	0.0	0.019	4.6	LOS A	0.1	0.5	0.10	0.51	0.10	45.3
2	T1	3	0.0	0.019	3.4	LOS A	0.1	0.5	0.10	0.51	0.10	42.7
3	R2	11	0.0	0.019	4.8	LOS A	0.1	0.5	0.10	0.51	0.10	44.8
Approach		24	0.0	0.019	4.5	LOS A	0.1	0.5	0.10	0.51	0.10	44.9
East: Bradly Street												
4	L2	6	0.0	0.020	4.6	LOS A	0.0	0.2	0.02	0.15	0.02	48.2
5	T1	28	0.0	0.020	0.0	LOS A	0.0	0.2	0.02	0.15	0.02	49.1
6	R2	4	0.0	0.020	4.6	LOS A	0.0	0.2	0.02	0.15	0.02	47.4
Approach		39	0.0	0.020	1.2	NA	0.0	0.2	0.02	0.15	0.02	48.9
North: Bluestone Drive												
7	L2	4	0.0	0.006	4.6	LOS A	0.0	0.2	0.04	0.52	0.04	45.3
8	T1	1	0.0	0.006	3.3	LOS A	0.0	0.2	0.04	0.52	0.04	43.0
9	R2	3	0.0	0.006	4.8	LOS A	0.0	0.2	0.04	0.52	0.04	44.8
Approach		8	0.0	0.006	4.5	LOS A	0.0	0.2	0.04	0.52	0.04	44.9
West: Bradly Street												
10	L2	4	0.0	0.009	4.6	LOS A	0.0	0.2	0.08	0.29	0.08	46.7
11	T1	7	0.0	0.009	0.0	LOS A	0.0	0.2	0.08	0.29	0.08	48.1
12	R2	5	0.0	0.009	4.6	LOS A	0.0	0.2	0.08	0.29	0.08	46.3
Approach		17	0.0	0.009	2.6	NA	0.0	0.2	0.08	0.29	0.08	47.3
All Vehicles		88	0.0	0.020	2.7	NA	0.1	0.5	0.05	0.31	0.05	47.3

Table B3: Priority-controlled Intersection of Bradly Street with Bluestone Drive Weekday Morning Period Existing Conditions with Place of Worship Traffic

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bluestone Drive												
1	L2	1	0.0	0.010	4.6	LOS A	0.0	0.2	0.11	0.52	0.11	45.1
2	T1	1	0.0	0.010	3.3	LOS A	0.0	0.2	0.11	0.52	0.11	43.5
3	R2	9	0.0	0.010	4.8	LOS A	0.0	0.2	0.11	0.52	0.11	44.5
Approach		12	0.0	0.010	4.6	LOS A	0.0	0.2	0.11	0.52	0.11	44.5
East: Forestwood Drive												
4	L2	1	0.0	0.015	5.6	LOS A	0.0	0.1	0.01	0.04	0.01	57.1
5	T1	26	0.0	0.015	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	59.6
6	R2	1	0.0	0.015	5.5	LOS A	0.0	0.1	0.01	0.04	0.01	56.7
Approach		28	0.0	0.015	0.4	NA	0.0	0.1	0.01	0.04	0.01	59.4
North: Bluestone Drive												
7	L2	4	0.0	0.022	5.6	LOS A	0.1	0.5	0.07	0.56	0.07	52.4
8	T1	6	0.0	0.022	4.3	LOS A	0.1	0.5	0.07	0.56	0.07	49.0
9	R2	16	0.0	0.022	5.6	LOS A	0.1	0.5	0.07	0.56	0.07	51.7
Approach		26	0.0	0.022	5.3	LOS A	0.1	0.5	0.07	0.56	0.07	51.4
West: Forestwood Drive												
10	L2	1	0.0	0.006	5.6	LOS A	0.0	0.1	0.02	0.12	0.02	56.6
11	T1	8	0.0	0.006	0.0	LOS A	0.0	0.1	0.02	0.12	0.02	58.8
12	R2	1	0.0	0.006	5.5	LOS A	0.0	0.1	0.02	0.12	0.02	55.3
Approach		11	0.0	0.006	1.1	NA	0.0	0.1	0.02	0.12	0.02	58.4
All Vehicles		77	0.0	0.022	2.8	NA	0.1	0.5	0.05	0.30	0.05	54.5

Table B4: Priority-controlled Intersection of Forestwood Drive with Bluestone Drive Weekday Morning Period Existing Conditions with Place of Worship Traffic